

CLAIMS

1. An alkaline storage battery comprising:

- (a) a shallow case having an opening and a bottom;
- (b) a sealing plate covering the opening of said case;
- (c) a first electrode adjacent to an inner face of the bottom of said case;
- (d) a second electrode adjacent to an inner face of said sealing plate;
- (e) a separator interposed between said first electrode and said second electrode;
- (f) an alkaline electrolyte; and
- (g) at least one current collector plate selected from the group consisting of (g1) a conductive current collector plate joined to the inner face of the bottom of said case and forming a gas transfer path distributed two-dimensionally between the inner face of the bottom of said case and said first electrode and (g2) a conductive current collector plate joined to the inner face of said sealing plate and forming a gas transfer path distributed two-dimensionally between the inner face of said sealing plate and said second electrode.

2. The alkaline storage battery in accordance with claim 1, wherein said gas transfer path is distributed in an area of 50 to 100 % of the whole inner face of the bottom of

said case or the whole inner face of said sealing plate.

3. The alkaline storage battery in accordance with claim 1, wherein said first electrode is 100 μm or more distant from the inner face of the bottom of said case, or said second electrode is 100 μm or more distant from the inner face of said sealing plate.

4. The alkaline storage battery in accordance with claim 1, wherein one of said first electrode and said second electrode is a negative electrode having a core material comprising punched metal.

5. The alkaline storage battery in accordance with claim 1, wherein one of said first electrode and said second electrode is a negative electrode comprising a hydrogen storage alloy or zinc.

6. The alkaline storage battery in accordance with claim 1, wherein said current collector plate [g] comprises a conductive porous material having pores that communicate with one another.

7. The alkaline storage battery in accordance with claim 1, wherein said current collector plate [g] comprises a conductive sheet having a plurality of protrusions.

8. The alkaline storage battery in accordance with claim 7, wherein said current collector plate [g] including said protrusions has an apparent thickness of 100 μm or more.

9. The alkaline storage battery in accordance with claim 7, wherein said current collector plate [g] including

said protrusions has an apparent thickness that is 1/3 or less of the thickness of said first electrode or said second electrode adjacent to said current collector plate.

10. The alkaline storage battery in accordance with claim 7, wherein said plurality of protrusions have tip ends that are buried in said first electrode or said second electrode.

11. The alkaline storage battery in accordance with claim 10, wherein said tip ends buried in said first electrode or said second electrode have a length that is 10% or more of the apparent thickness of said current collector plate (g) including said protrusions.

12. The alkaline storage battery in accordance with claim 7, wherein said conductive sheet having the plurality of protrusions comprises a metal sheet deformed by punching from one side or both sides and has a plurality of pores and burrs formed around said pores, and said conductive sheet including said burrs has an apparent thickness that is equal to or more than twice the material thickness of said metal sheet.

13. The alkaline storage battery in accordance with claim 12, wherein pores closest to each other are formed by punching from opposite sides, and burrs formed around said pores protrude in mutually opposing directions.

14. The alkaline storage battery in accordance with claim 12, wherein pores closest to each other have a center-to-center distance of 0.3 mm or more and 5 mm or less.

15. The alkaline storage battery in accordance with claim 12, wherein said metal sheet before being deformed by punching has projections and depressions.

16. An alkaline storage battery comprising:

- (a) a shallow case having an opening and a bottom;
- (b) a sealing plate covering the opening of said case;
- (c) a first electrode adjacent to an inner face of the bottom of said case;
- (d) a second electrode adjacent to an inner face of said sealing plate;
- (e) a separator interposed between said first electrode and said second electrode;
- (f) an alkaline electrolyte; and
- (g1) at least one spacer joined to the inner face of the bottom of said case and having at least one protrusion that forms a gas transfer path distributed two-dimensionally between the inner face of the bottom of said case and said first electrode, and/or (g2) at least one spacer joined to the inner face of said sealing plate and having at least one protrusion that forms a gas transfer path distributed two-dimensionally between the inner face of said sealing plate and said second electrode.

17. An alkaline storage battery comprising:

- (a) a shallow case having an opening and a bottom;
- (b) a sealing plate covering the opening of said

case;

- [c] a first electrode adjacent to an inner face of the bottom of said case;
- [d] a second electrode adjacent to an inner face of said sealing plate;
- [e] a separator interposed between said first electrode and said second electrode;
- [f] an alkaline electrolyte; and
- [g] at least one current collector plate selected from the group consisting of (g1) a conductive current collector plate joined to the inner face of the bottom of said case and forming a gap between the inner face of the bottom of said case and said first electrode and (g2) a conductive current collector plate joined to the inner face of said sealing plate and forming a gap between the inner face of said sealing plate and said second electrode.